NEVADA DIVISION OF ENVIRONMENTAL PROTECTION

F A C T S H E E T
(pursuant to NAC 445A.874)

Permittee Name: **Arco Products Company**
Permit Project: **Arco Station #5319**
Permit Number: **UNEV2000208**

A. Description of Injection

Location: The single network of three (3) injection wells is located at 2320 East Fremont Street, Las Vegas, Nevada 89101 within the SE¼ of Section 35 within T20S, R61E, MDB&M, in Clark County.

Characteristics: The injectate will consist of a 3 % hydrogen peroxide solution prepared with dechlorinated water. The water used for the solution will be obtained from a fire hydrant located near the site. The water will be dechlorinated utilizing 15 grams of Pentahydrate sodium thiosulfate per 250 gallons of water. This generates a 0.0001 molar solution. Pentahydrate sodium thiosulfate ultimately reacts with chlorine to form sodium chloride. Because the concentration of the solution is very low, an increase in TDS is not expected to be significant, but will be monitored. Injection activities will include 3 % hydrogen peroxide solution injected at no more than 1,500 cumulative gallons per quarter into three (3) injection wells. A temporary permit was issued on August 21, 2000 to assist in expediting the remediation efforts.

B. Synopsis

Arco Station #5319 is a gasoline station. An underground storage tank (UST) was discovered to be leaking and a site characterization was subsequently performed in July of 1998. The contamination consists of gasoline-fraction petroleum hydrocarbons and no chlorinated solvents. The levels are relatively low (See Section C for Receiving Water Characteristics). The remediation approach will consist of injecting a dilute solution of hydrogen peroxide into the formation via gravity. The injection activities shall not cause fluid to surface at or around the injection point.

The applicant has requested an Underground Injection Control permit for the injection of a 3 % hydrogen peroxide solution which will be injected into three (3) existing injection wells that will concurrently be utilized as monitoring wells. The hydrogen peroxide will be injected at no more than 1,500 gallons per quarter utilizing dechlorinated water for the solution. The hydrogen peroxide is expected to provide a source of oxygen for the indigenous microbes which should enhance the

petroleum hydrocarbon contamination. Monitoring will be conducted to ensure that the injectate does not cause the contamination to migrate.

C. Receiving Water Characteristics:

Groundwater sampling at this site has demonstrated the presence of dissolved petroleum hydrocarbons. The petroleum hydrocarbons are associated with leaking underground fuel storage tanks.

The geology encountered during well construction at the site consists of layers of silts and sands to a depth of approximately seventeen (17) feet below ground surface. Sand with trace silt and gravel is encountered from approximately seventeen (17) feet below ground surface to twenty-five (25) feet below ground surface. Groundwater is present at approximately twelve (12) feet below ground surface and the average local gradient is estimated to be approximately 0.02 ft/ft in the east-northeasterly direction.

The groundwater quality at this site has demonstrated the following maximum concentrations as determined by samples analyzed in March of 2000:

Constituent	Existing Groundwater Concentration	Injection Limit
Benzene	40 ppb	5 ppb (State and Federal Limit)
Toluene	ND	100 ppb (State Limit)
Ethylbenzene	15 ppb	100 ppb (State Limit)
Xylenes (total)	160 ppb	200 ppb (State Limit)
MTBE	310 ppb	200 ppb (Site Specific Target Level)
Iron	0.89 ppm	0.6 ppm (secondary standard)
Lead	ND	0.015
TDS	4,700 ppm	1000 ppm (secondary standard)

D. Procedures for Public Comment

Notice of the Division's intent to issue a permit authorizing the facility to inject into the groundwaters of the State of Nevada has been sent to the Las Vegas Review Journal and was published on August 24, 2000.

The notice has been mailed to interested persons on our mailing list (Please refer to Attachment B). Anyone wishing to comment on the proposed permit can do so in writing for a period of 30 days following the publication date (August 24, 2000) of the said public notice. The comment period can be extended at the discretion of the Administrator. All written comments received during the comment period will be retained and considered in the final determination.

A public hearing on the proposed determination can be requested by the applicant, any affected state, any affected interstate agency, the regional administrator of EPA Region IX or any interested agency, person or group of persons.

Any public hearing determined by the Administrator to be held must be conducted in the geographical area of the proposed discharge or any other area the Administrator determines to be appropriate. All public hearings will be conducted in accordance with NAC 445A.238.

The final determination of the Administrator may be appealed to the State Environmental Commission pursuant to NRS 445A.605.

E. Proposed Determination

The Division has made the tentative determination to issue the proposed permit for a five year period.

F. Proposed Limitations and Special Conditions

PARAMETER	FREQUENCY	LOCATION	LIMITATIONS
Benzene, Toluene, Ethylbenzene, total Xylenes (BTEX), and methyl tertiary butyl ether (MTBE)	Quarterly (Samples shall be taken no sooner than 10 days following injection event)	MW-1, MW-2, MW-3, MW-4, MW-5, MW-6 and MW-7	Monitor and Report

Dissolved Oxygen and pH and TDS	Quarterly	MW-1, MW-2, MW-3, MW-4, MW-5, MW-6 and MW-7	Monitor and Report
Iron II	Quarterly	MW-1, MW-2, MW-3, MW-4, MW-5, MW-6 and MW-7	Monitor and Report

PARAMETER	FREQUENCY	LOCATION	LIMITATION
Hydrogen peroxide: Concentration Volume Date Injected	Each Injection Event	MW-1, MW-2 and MW-6	3 % Solution with a maximum of **1,500 gallons per quarter**
Groundwater Elevation and Depth to Groundwater	Quarterly	All Project-Related Monitoring Wells	Monitor and Report

G. Rationale for Permit Requirements

The permit conditions will help to ensure that the injectate does not adversely affect the existing water quality or hydrologic regime.

Prepared by: Valerie G. King
Date: August 2000